

**Mishawaka Utilities
Electric Division
Electric Service Quality Rulemaking
Data Request**

Reliability:

The area of reliability will include the examination of sustained outages, momentary outages, restoration of service following a sustained outage and power quality.

1. Is your utility participating in any EPRI (or other organizations) research projects relating to reliability or other service quality issues? If yes, please describe the project(s) you are involved in and how it relates to reliability issues addressed in this section of the data request.

NO

Service Interruption and Outages***Sustained Outages:***

1. A. How does your utility identify an outage?

Outages are identified when a customer calls, reporting a power problem to the electric office, during normal working hours, or to the answering service, after hours.

1. B. At what point does your utility consider an outage a “sustained” outage versus a “momentary” outage?

Sustained outages are those that have a duration of > two minutes.

2. A. Please describe the response process once an outage is identified.

Non Substation Related Outages

During Normal Working Hours – Typically a trouble truck is dispatched to the scene of the reported outage, at which time an evaluation is performed as to the extent/cause of the outage. Crews are then dispatched as necessary to deal with the outage.

After Normal Working Hours –An on-call supervisor is dispatched by the answering service to the scene of the reported outage, at which time an evaluation is performed as to the extent/cause of the outage. Crews are then dispatched as necessary to deal with the outage.

Substation Related Outages

During Normal Working Hours – There is a standing order that the Electric Division manager is to be notified immediately of any substation related outage or any outage to a significant customer (> 500 kVA load). In addition, management personnel from Engineering and Construction immediately head to the affected substation to assess the extent of the outage and to determine required corrective actions. Actions are initiated to transfer affected circuits to alternate feeds, with the goal of restoring the most critical loads first (e.g., hospital, fire, police, etc.).

After Normal Working Hours – An on-call supervisor is dispatched by the answering service to the scene of the reported outage, at which time an evaluation is performed to determine the extent/cause of the outage, and to determine required corrective actions. There is a standing order that the Electric Division manager is to be notified immediately of any substation related outage or any outage to a significant customer (> 500 kVA load). In addition, the Chief Engineer or Substation Supervisor will be called if the on-call supervisor requires additional technical support. Actions are subsequently initiated to transfer affected circuits to alternate feeds, with the goal of restoring the most critical loads first (e.g., hospital, fire, police, etc.).

2. B. Has your response process changed in any way over the past 5 years?

NO

2. C. What follow-up is done after service has been restored to determine that an individual customer, once again, has electric service?

Non-Substation Related Outages –if an outage affects an individual customer's voltage checks are performed at the metering point. If other than a single customer's, then restoration of the failed transformer supply is considered to be sufficient verification.

Substation Related Outages – Restoration of the failed circuit supply is considered to be sufficient verification.

3. Under what conditions or circumstances does your utility report an outage to the Commission? Since January 2001, how often have you reported an outage to the Commission? How often did you provide updates on the outage and the restoration of service?

We have not reported outages to the commission.

4. Outages resulting from major weather events can somewhat be anticipated, please describe the weather event outage response from the time a weather situation is known or anticipated to exist through the time the last customer is brought back online. Please describe any facilities and/or procedures that are specifically used in anticipation or during a major weather event in case of widespread outages. Are the facilities and/or procedures different depending on the type of weather event, for example tornado conditions versus a potential ice storm? Are there non-weather related outage situations when these facilities and/or procedures are used?

We do not have any specific procedures in place to address weather emergencies, as we have no generation facilities, only distribution. We address storm damage as any other outage, as addressed above. However, depending on the anticipated severity of a storm, personnel may be held over after normal working hours to improve our response time. Through our IMEA (Indiana Municipal Electric Association) we have a Mutual Aid Program, which Municipal Utilities State wide participate in. This provides number of crews, vehicles by type, and type and category of material available.

5. What other government (local, state, federal) agencies or organizations **must** your utility interact or communicate with during outage situations? Specifically, are there other agencies or organizations that your utility is required by law or regulation to report to or communicate with during outage situations?

NO

6. Are there other agencies, organizations or companies that your utility typically interacts or communicates with during critical outage situations? Please describe the circumstances and types of interactions or communications that occur.

AEP (primary energy supplier) – provides maintenance support such as Doble testing a suspected transformer that has been forced off-line due to a system protection trip

Koontz-Wagner (contractor) – provides engineering support for issues involving engineering calculations, such as CT configurations and the associated relay setpoints to support installation of a spare transformer

Herrman & Goetz (contractor) – provides maintenance support for issues involving equipment repair, such as TTRing a transformer that has been forced off-line due to a system protection trip

7. What is the policy concerning the use of service crews from other utilities? Has the availability of crews or the willingness of other utilities to make crews available become more limited in recent years? Are non-utility crews being used or considered more routinely than requesting crews from neighboring utilities?

We do not require support from other utilities of non-utility crews.

8. A. What type of information does your utility typically gather/report/analyze regarding sustained outages?

An outage report is completed for all sustained outages that either involve substation equipment or that impact a significant customer (> 500 kVA load). The report contains the circuit(s) affected, outage duration, cause, and corrective actions taken to restore power. Each outage is also assigned a "cause category" that is trended annually.

8. B. How is this information used in the utility?

Trended data is used as input to our review process for determining long-term engineering improvements. Examples of improvements considered include procedure enhancements and work process changes.

9. Does the utility attempt to quantify the financial costs of outages to customers and local communities? If so, please explain how this is done.

NO

Momentary Outages:

1. A. Does your utility identify and track momentary outages??

YES

1. B. How is a momentary outage identified and/or defined

Momentary outages are defined as any outage lasting for less than a two-minute duration. Observing a trip experienced by a substation circuit recloser identifies the outage as momentary outages.

2. A. What type of information does your utility typically gather/report/analyze regarding momentary outages?

Recloser trip data is taken monthly and recorded in our substation data database. Subsequently the number of recloser trips is analyzed annually.

2. B. How is this information used in the utility?

Recloser trip data is collected monthly and recorded in our substation database. Subsequently the number of recloser trips is analyzed annually. This data is used as input to the Electric Division Priority Projects schedule,

developed at the start of each year to focus engineering resources to those areas requiring the most attention.

3. Other than the duration of the outage, are there operational or characteristic differences in a sustained outage versus a momentary outage?

Sustained outages are typically characterized by faults, that don't burn through, on the main three-phase distribution line. This line is only protected by the substation circuit reclosers overcurrent relays. Momentary outages, on the other hand, are typically the result of the clearing of branch line fusing, sizing which is determined through fuse coordination studies.

Performance Measures and Statistics

1. Typical reliability performance statistics include SAIDI, CAIDI, SAIFI, etc. Does your utility routinely calculate these statistics? How is each of the variables in each of the calculations defined? Are these statistics calculated as part of your outage management system or through some other means?

NO

2. Are there other reliability statistics your utility calculates? What are they? How are they calculated? How are the variables used to calculate them defined? Are these statistics calculated as part of your outage management system or through some other means?

NO

3. Does your outage management system calculate other reliability statistics that your utility does not routinely review? What are these statistics? How are they calculated? How are the variables used to calculate them defined?

WE DO NOT HAVE A FORMAL OUTAGE MANAGEMENT SYSTEM

4. Reliability statistics are often calculated excluding storms or other major outage events. What are the advantages and disadvantages to excluding storms or other events? Do reliability statistics typically calculated by your utility include or exclude storms or major outage events? If these events are excluded, how do you determine when to exclude an outage event? How do you define the different levels of outage events?

NOT YET ADDRESSED

5. How do service territory differences (e.g., rural versus metropolitan, high industrial concentration versus more residential) affect the calculation of

reliability statistics? What statistic, if any, is most indifferent to the service area characteristics, in other words, what statistic(s) would most likely allow relevant comparisons among a wide variety of utility types?

NOT YET ADDRESSED

6. Can the calculation of reliability indices be standardized among Indiana utilities? Please explain how that might be done.

It is extremely easy to standardize the reporting requirements, but VERY difficult to assure consistency of the reported data. Experience at the Institute of Nuclear Power Operations (INPO, based in Atlanta, Georgia) should be reviewed before implementation of a standardized approach. INPO has 23+ years in the collection of industry data.

7. Should utility size or other characteristics be taken into consideration when evaluating the reliability statistics from a company?

Absolutely

8. Are performance evaluations and the resulting compensation for any individual, groups of individuals or divisions of the utility tied to reliability statistic results? Please explain what reliability statistics are used and who is evaluated based on the results of those statistics. How are the acceptable levels of performance set and what are those levels?

NOT YET ADDRESSED

Worst circuits

In order to prevent utilities from having “pockets” of poor service reliability, some state commissions require utilities to report the top 10-25 worst circuits and then address those problem areas.

1. Are there areas of your utility’s service territory that are more prone to outages, either sustained or momentary, or other reliability problems, such as power quality, than others? How does your utility address this type of problem?

NO

2. What are the advantages of identifying the top worst performing circuits of a utility?

Identifying the “worst performing circuits” provides utility management information so that resources can be appropriately focused.

3. What are the disadvantages of identifying the top worst performing circuits of a utility?

There are no disadvantages to identifying the “worst performing circuits”, as the methodology for determining the worst performing circuits takes into account the impact the circuit outages have on our customers.

Power Quality

1. A. Based on your utility’s interaction with its customers, is power quality an important concern of your customers?

YES

1. B. What aspects of power quality are of particular concern (voltage sag, high or low voltage, voltage spikes and transients, flickers, surges, harmonics, other)? Please explain.

Our customers rely on us to provide electric service at a voltage that supports proper operation of their electric equipment; i.e., a supply voltage within allowable tolerances. As far as harmonics are concerned our terms and conditions put the onus on the customer to install the necessary equipment to compensate for undesirable harmonics arising from customer-installed equipment.

1. C. Are there typical types of customers or customer classes that voice a greater concern about power quality than others? Please explain.

Customers with sensitive electronic equipment have a greater need for maintaining voltage within a narrow operating band. Our terms and conditions put the onus on the customer to install the necessary equipment to regulate the voltage within a narrow band dictated by specialized equipment.

1. D. How has your utility addressed these concerns?

We have, however, installed high capacity capacitor banks and filter banks in order to bring the substation power factor as close to unity as possible. This restores kVA lost to reactive loads, allowing us to supply customer real-load more reliably.

2. A. Does your utility have any program or plan in place specifically addressing power quality issues? Please explain.

Our program for addressing customer power quality issues is an informal program. When requested, we install portable power quality monitoring equipment at the customer’s site to assist the customer in the resolution of

power quality issue concerns. In addition we receive monthly billing from our energy supplier identifying substation kVAR and pf. This information is used to assess the need for additional reactive load compensation.

2. B. How have these programs or plans changed over the last five years?

The use of portable power quality monitoring equipment began three years ago. In addition monitoring kVAR and pf from the monthly billing from our energy supplier began two years ago.

3. Does your utility collect/track any type of power quality related data? If so, what data is collected and how is it used by the utility?

See the answers to question two, directly above.

4. Is power quality data used as a performance measure for compensation for any person(s), groups and/or divisions in your utility? Please explain what data is used and why.

NO

Leading Indicators

While it's important to restore service as quickly as possible following an outage, when practical, it is better to prevent the outage from occurring.

1. A. What are good leading indicators of possible service outages?

- *Excessive tree growth*
- *Aging wire*
- *Aging poles*

1. B. Does your utility routinely monitor specific aspects of the electric operations or system with the goal of preventing service outages? What do you monitor and why?

Yes. We perform formal inspections of each of our eleven substations on a monthly basis to assess the material condition of the equipment as well as to record key substation parameters, such as circuit currents and battery voltages.

2. Does your utility have a routine inspection and maintenance plan/procedure in place designed to prevent the possibility of service outages? Please explain the plan/procedure.

Yes. We have implemented a comprehensive preventive maintenance (PM) program on all substation equipment. Each piece of equipment has a PM

periodicity assigned to it along with procedures outlining PM implementation procedures and acceptance criteria. The PMs are based on both vendor recommendation and our operating experience.

3. Has this plan/procedure changed in the past five (5) years? Please explain the changes and why they were made.

Yes. The PM program was implemented in August 2000 and is revised as necessary to incorporate in-house as well as industry lessons learned.

4. Has your utility made any study or analysis as to how successful your inspection and maintenance plan/procedure has been in preventing service outage? Please explain.

We trend unplanned substation outages (sustained circuit) and their causes. Examples of causes include failed substation equipment, line-clearing related, and contractor digging.

5. Does your utility have a vegetation management plan/procedure in place designed to prevent the possibility of service outages? Please explain the plan/procedure.

Yes. We perform line-clearing systematically. We divide our service territory into quarter sections and perform necessary clearing in these sections on a continuing, rotating basis. It is our goal to complete a full cycle of clearing every year.

6. Has this plan/procedure changed in the past five (5) years? Please explain the changes and why they were made.

Yes. We implemented a more structured cyclic line-clearing program this past year. The changes were made because we found that lack of such a program put us in a reactive rather than proactive mode..

7. Has your utility made any study or analysis as to how successful your vegetation management plan/procedure has been in preventing service outage? Please explain.

Not yet.

8. Does your utility identify/track the age of equipment used in the production and delivery of electricity to the customer? Why or why not?

Yes. We track age, along with operating history, so that we can schedule major maintenance, such as a transformer rebuilds .

9. Could equipment age be used as a leading indicator of potential service outages? Would this be an effective indicator of potential service outages? Please explain.

Not by itself. It needs to be used along with operating history.

10. Does your utility track equipment used in the production and delivery of electricity to the customer to identify equipment that tends to have a premature or unpredicted failure rate or degraded performance level? Why or why not?

No. This has not been an issue.

11. Could the identification of equipment with premature or unpredicted failure rate or degraded performance level be used as a leading indicator of potential service outages? Would this be an effective indicator of potential service outages? Please explain.

Yes. However, these failures tend to be random in nature, as they are unpredictable.

12. Are there any other methods (e.g., infra-red inspections or radio frequency inspections) you carry out to help maintain and/or improve system reliability? Please describe the methods you use.

Infrared (IR) inspections are an excellent predictive tool to evaluate the soundness of electrical connections. We perform IR surveys of all our substations annually. These surveys include all connections leading into and out of the substation, as well as scans of the internals of all cabinets. We also target specific large customer distribution transformers for inspection. In addition, we discuss the results of vendor's inspections performed at our customer's requests to ensure significant issues identified are resolved in a timely manner.

Setting Performance Standards

1. Does your utility set any type of performance standards relating to service reliability and quality as a method of determining employee and/or division performance for compensation purposes? What are these standards? How are they measured? How do they affect the overall compensation for a(n) employee and/or division?

NO

2. Could similar standards be set by the Commission to help evaluate and compare the service quality of Indiana utilities? Please explain why or why not.

NA

3. If these standards are not appropriate to help evaluate and compare the service quality of Indiana utilities, please suggest some standards that would be appropriate.

NA

4. To date there has been little or no use of I. C. 8-1-2.5 <http://www.ai.org/legislative/ic/code/title8/ar1/ch2.5.html> by utilities to propose performance based rates that would tie utility incentives/penalties to reliability and other measurable performance criteria. Is there a problem with how I. C. 8-1-2.5 is structured that makes it inappropriate or ineffective as a vehicle for performance based rates? Please explain. From your perspective (utility, customer group, other) what are the pros and cons of performance based rates?

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Safety:

1. Is your utility participating in any EPRI (or other organizations) research projects relating to safety? If yes, please describe the project(s) you are involved in and how it relates to safety issues addressed in this section of the data request.

NO

2. What actions to ensure public safety are taken, both by the utility and other emergency resources, when a live power line has come down? Please explain the activities from the time a live power line is reported down until it has been repaired or rendered safe.

Crews are immediately dispatched to the area impacted by the downed line. Traffic barriers are established jointly with the police and street department to limit access; line is de-energized as quickly and safely as possible. In addition, fire department personnel are dispatched where the risk of fire is deemed to be significant.

3. In situations where live power lines may be down in multiple locations, how is public safety ensured?

The duty supervisor makes the determination as to the risk posed by the downed line and has the authority to deenergize any circuit deemed to pose an unacceptable risk if left energized.

4. In critical weather situations where widespread areas may experience outages or down power lines, is there any central coordination (beyond each individual

utility) of the restoration of service and the repair of down lines? Please explain who does the coordination and what organizations are involved.

NO

5. What could be done to improve the public awareness of the hazards that may exist as a result of weather related power outage? How does your utility inform customers of these types of hazards?

Public awareness messages.

6. What is the most typical accident involving utility facilities that happens to utility personnel and to non-utility/customers/the general public? What has your utility done to help try and alleviate these types of accidents?

We do not have any typical accidents in which our people are involved. The typical accident involving the general public is vehicle collisions with our electric poles. We have not participated in any programs to limit these type accidents

7. What is the current average term of employment for service and line crew personnel? Does your utility provide on-going safety training for your line and service crews? Please explain the types of training these crews receive.

Average length of service with our crews is 19 years. With the assistance of the IMEA Indiana Municipal Electric Association, we provide bi-monthly safety training programs in all areas of the electric field including but not limited to bucket and pole rescue, spill containment, trenching and shoring, lock out and tag out procedures etc. Also, through our City Fire and EMS Department CPR and First-Aid training is given as required. Through our Joint Apprenticeship Training Program, apprentices receive safety training with on the job and classroom training. Additional safety training is administered by our in-house safety committee and outside contractors as necessary. Our Safety Manual is reviewed annually and updated as necessary

8. Commission rules currently require utilities to report accidents resulting in death. Do you think this rule provides useful information to the Commission? Please explain. Do you have any recommended changes that would make this rule more useful? Please explain.

Yes. Any chink in the armor that results in a fatality must be evaluated in great deal with barriers subsequently put into place to prevent recurrence. We have no recommendation at this time.

9. What other organizations or agencies must you report to when there has been an accident, injury or fatality? Please explain what must be reported, under what circumstances and in what time frame from when the incident occurred.

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10. The Commission is aware that in preparation for Y2K utilities developed emergency operating plans (EOP). Does your utility continue to maintain and update an emergency operating plan? What circumstances or conditions is the EOP designed to cover? Is the EOP prepared and/or modified completely by utility personnel or do other organizations or agencies have input to the plan? Please explain how outside sources have input to the EOP. Does your utility routinely run drills on the EOP to check the effectiveness of the plan and to identify areas, which need improvement? Please describe your drilling procedure.

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Customer Service:

1. Is your utility participating in any EPRI (or other organizations) research projects relating to customer service? If yes, please describe the project(s) you are involved in and how it relates to customer service issues addressed in this section of the data request.

NO

2. Please describe your utility's customer service philosophy and how your utility implements this philosophy.

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3. How many employees are directly engaged in customer service types of activities and where do they fit in the utility's overall organizational structure? An organizational diagram maybe useful in responding to this question.

In our Business Office we have 12 employees dealing with customers, either fact-to-face or on the phone.

4. Assuming there are a variety of activities that can be considered "customer service" please describe the different types of activities your utility classifies as "customer service" and how many employees are engaged in each activity.

Cashiers – four

Customer Service Reps – eight – answer phones and wait on customers

5. Please provide a brief description of the qualifications required by employees engaged in the various customer service activities described in response to the previous question. Have these requirements and protocols changed over the past five years? Please explain.

Our Customer Service Reps must be able to do three different jobs, on a rotating basis. This has not changed in the last five years.

6. Please describe any equipment and/or facilities that are specifically designed to help the utility to communicate with its customers and to enhance customer service.

We use an answering service for after hours calls.

7. How does your utility evaluate the quality and performance of your customer service activities?

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8. Is the compensation of employees, groups of employees or divisions tied to customer service performance? Please explain how this is done and whom this process affects.

NO

What methods or statistics are used to evaluate customer service performance? Please provide a description of the methods or statistics used.

Yearly evaluations.